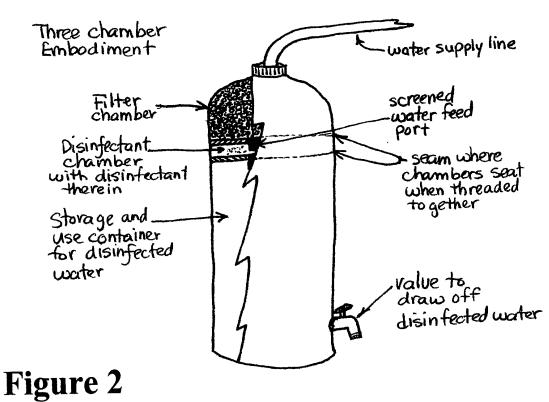
Figure 1



Two Chamber Embodiment

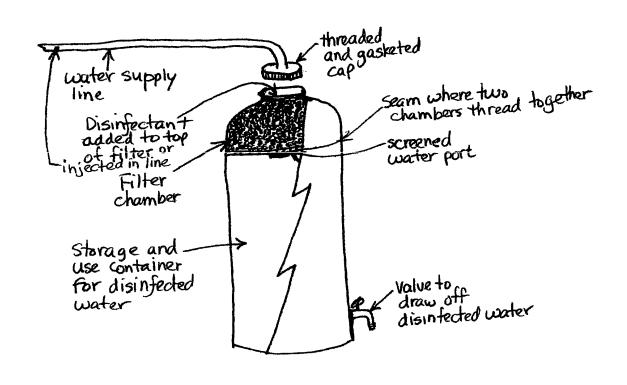


Figure 3

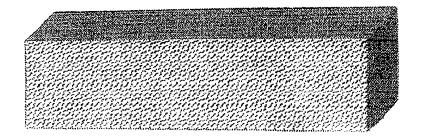
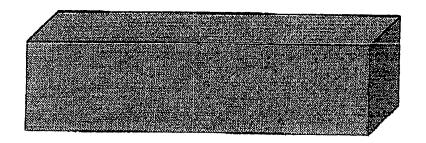


Figure 4



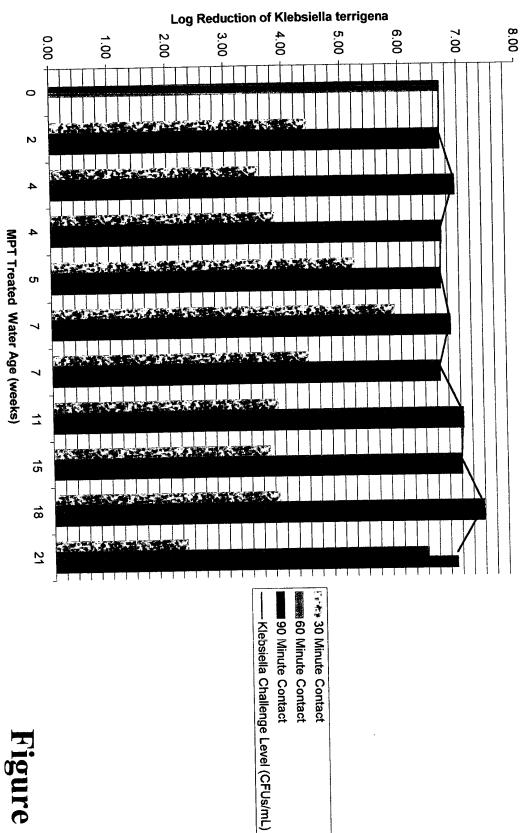


Figure 5

Filename: Residual Study Summary Version1.xls Filedate: August 8, 2003

Results in Scientific Notation: No results excluded

Figure 6A

duded					Klebsiella t		
				Run Results - CFL		ntact time (min)
Run Date	MPT "age" (weeks)	MPT Run #	Sample #	Challenge Dose	T30	T60	T90
31-Mar-03	0	10	2	5.0 x 10^6		0	
OT MAN GO			3			0	
15-Apr-03	2	13	4	4.9 x 10^6	2.5 x 10^2	0	0
10 101 00			5		1.4 x 10^2	0	0_
30-Apr-03	4	15	4	8.7 x 10^6	2.4 x 10^3		. 0
30-701-00			5		2.3 x 10^3	0	0
2-May-Q3	4	16	4	5.0 x 10^6	9.9 x 10^1	0	0
2-Iviay-Q5			5		5.3 x 10^3	0	0
6-May-03	5	17	4	4.8 x 10^6	4	0	0
O-IVIAY-00			5		2.1 x 10^2	5.4 x 10^1	0
20-May-03	7	20	4	6.9 x 10^6	1	0	0_
20-Way-03	 		5		8.4 x 10^1	0	0
29-May-03	7	21	4	4.5x 10^6	1.4 x 10^2	0	0
25-Way-05	 '		5		2.3 x 10^2	0	0
17-Jun-03	11	22	4	1.1 x 10^7	8.5 x 10^2	0	0
17-0411-05	 		5		2.7 x 10^3	0	0
15-Jul-03	15	24	4	1.0 x 10^7	8.6 x 10^2	0	0
10-041-05	 		5		4.4 x 10^3	1	0
7 100 03	18	29	6	1.2 x 10^7	8.7 x 10^2	2.0 x 10^1	0
7-Aug-03	ļ		7	2.4 x 10^7	3.0 x 10^3	11	0
25 Aug 22	21	32	5	8.0 x 10^6	6.1 x 10 ⁴	8	0
25-Aug-03	 		6		2.9 x 10^4		0
	 	 	 	1			
	+		1	1]	
			— ——	T			L
	 	 	1	† · · · · · · · · · · · · · · · · · · ·	T		

Results in Number Format No results excluded

Judeu					Klebsiella te		
				Run Results - CFU			(min)
Run Date	MPT "age" (weeks)	MPT Run #	Sample #	Challenge Dose	T30	T60	T90
15-Apr-03		13	4	4,900,000	250	0	
10-7401-00			5		140	0	
30-Apr-03	4	15	4	8,700,000	2,400	0	
307401 30			5		2,300	0	
2-May-03	4	16	4	5,000,000	99	0	
Z-Midy CO			5		5,300	0	
6-May-03	5	17	4		4	0	
O May Co			5		210	54	
20-May-03	7	20			1	0	<u> </u>
					84	0	
29-May-03	7	21			140	0	<u> </u>
					230	0	
17-Jun-03	11	22			850	0	
1, 4-11					2,700	0	
15-Jul-03	15	24			860	0	
					4,400	1	
7-Aug-03	18	29	6			20	
						1	
25-Aug-03	21	32		8,000,000		8	
				3	29,000	0	
							├
			<u> </u>	<u> </u>			┼
		1		<u> </u>			
			<u> </u>	<u> </u>	L		┸

Note: 7 Aug 03 sample #7 was challenged at 2X dose of #6 sample

Results in Log Format No results excluded

cluded					Klebslella t		
				Run Results - CFU	s/mL by co	ntact time (
Run Date	MPT "age" (weeks)	MPT Run #	Sample #	Challenge Dose	T30	T60	T90
31-Mar-03	0	10	2	6.70		0.0	
31-Wai-00	<u>×</u>		3	6.70		0.0	
15-Apr-03	2	13	4	6.69	2.40	0.0	0.0
13-401-00			5	6.69	2.15	0.0	0,0
30-Apr-03	4	15	4	6.94	3.38	0.0	0.0
30441-00		1	5	6.94	3.36	0.0	0.0
2-May-03	4	16	4	6.70	2.00	0.0	0.0
Z-IVIAY-US			5	6.70	3.72	0.0	0.0
6-May-03	5	17	4	6.68	0.60	0.0	0.0
O-IVIAY-US_			5	6.68	2.32	1.73	0.0
20-May-03	7	20	4	6.84	0.00	0.0	0.0
20-Way-03	 		5	6,84	1.92_	0.0	0,0
29-May-03	 	21	4	6.65	2.15_	0.0	0,0
za-may-03	 	· · · · · · · · · · · · · · · · · · ·	5	6.65	2.36	0.0	0.0
17-Jun-03	11	22	4	7.04	2.93	0,0	0.0
17-Suji-03	 		5	7.04	3.43	0.0	0.0

0.0 0.0 0.0 0.0 0.00 0.00 1.30 0.00 7,00 2.93 15 15-Jul-03 7.00 7.08 3.64 2.94 18 7-Aug-03 3.48 7.38 6.90 0.90 4.79 4.46 32 21 25-Aug-03 6.90

Figure 6B

Note: 7 Aug 03 sample #7 was challenged at 2X dose of #6 sample Note: For log value, a "1" is reported as 0.00 and a "0" is reported as 0.0 and will be indicated as ">" in log reductions

Makeup Water: CWD finished water, carbon filter, 1 micron nominal filtration, UV.

Water Chemistry: - 3/31/03 (pre MPT addition)
pH - 7.15
Turb - 0.19
Temp - 22.0
5/29/03 (MPT in water)
pH - 7.84
TDS - 144.6 mg/l pH - 7.84 Turb - 0.57 NTU Temp - 21.5 ' C

Conductivity - 199.8 micromhos/cm Total Chlorine - <0.03 mg/L

TDS - 144.6 mg/L Conductivity - 217 micromhos/cm Total Chlorine - <0.03 mg/L

Log Reductions No Results Excluded

xcluded					Klebsiella (
				Run Results - CFU	s/mL by co		
Run Date	MPT "age" (weeks)	MPT Run #	Sample #	Challenge Dose	T30	T60	T90
31-Mar-03	0	10	2	6.70		6.70	
31-Wai-00			3 _	6.70		6.70	
15-Apr-03	2	13	4	6,69	4.29	6.69	6.69
(3-74)1-03			5	6.69	4.54	6.69	6,69
30-Apr-03	4	15	4	6.94	3,56	6.94	6,94
30-401-03			5	6.94	3.58	6.94	6,94
2-May-03	4	16	4	6.70	4,70	6.70	6.70
Z-Way-00			5	6.70	2.98	6.70	6.70
6 May 02	5	17	4	6.68	6.08	6.68	6.68
6-May-03			5	6.68	4.36	4.95	6,68
00.14=- 00	7	20	4	6.84	6.84	6.84	6.84
20-May-03	 		5	6.84	4.92	6.84	6.84
00.14=00	7	21	4	6.65	4.50	6.65	6.65
29-May-03	 		5	6.65	4.29	6.65	6.65
47.1 - 00	11	22	4	7.04	4.11	7.04	7.04
17-Jun-03	<u> </u>		5	7.04	3.61	7.04	7,04
	15	24	4	7.00	4.07	7.00	7.00
15-Jul-03	15		5	7.00	3.36	7.00	7.00
	18	29	6	7.08	4.14	5.78	7.08
7-Aug-03	10	20	7	7.38	3.90	7.38	7.38
	21	32	5	6.90	2.11	6.00	6.90
25-Aug-03	21.	 	6	6.90	2.44	6.90	6.90
			 				
	 	1	 				
			+				
	 		1				

Note: 7 Aug 03 sample #7 was challenged at 2X dose of #6 sample

Run Date	MPT "age" (weeks)	MPT Run #	Sample #	Run Results - CFU Challenge Dose	T30	T60	
31-Mar-03	0	10	2	6,70		0.0	
31-Mar-03			3	6.70		0.0	
15-Apr-03	2	13	4	6.69	2,40	0.0	
13-401-03			5	6.69	2.15	0.0	
30-Apr-03	4	15	4	6.94	3.38	0.0	
30-701-03			5	6.94	3.36	0.0	
2-May-03	4	16	4	6,70	2,00	0.0	
Z-Way-05			5	6.70	3.72	0.0	<u></u>
6-May-03	5	17	4	6.68	0.60	0.0	
U-11/21-00			5	6.68	2.32	<u></u>	
20-May-03	7	20	4	6.84	0.00	0.0	_
20-Way-03	· · · · · · · · · · · · · · · · · · ·		5	6.84	1.92	0.0	
29-May-03	7	21	4	6.65	2.15	0.0	_
ZOTVIEY			5	6,65	2.36	0.0	<u> </u>
17-Jun-03	11	22	4	7.04	2.93	0,0	L.
17-5411-00	 		5	7.04	3.43	0.0	<u> </u>
15-Jul-03	15	24	4	7.00	2.93	0.0	<u> </u>
10-001-00	 		5	7.00	3.64	0.00	┡
7-Aug-03	18	29	6	7.08	2.94	<u> </u>	┞-
			7	7.38	3.48	0.00	↓_
25-Aug-03	21	32	5	6,90	4.79	0.90	
20,149 00			6	6,90	4.46	0,00	↓_
				<u> </u>		<u> </u>	↓_

Log Reductions May 6 and Aug 7 "fiyer" results at 60 minutes excluded

18 - 7 "Nuce" =	esults at 60 minutes ex	hahur			(lebsiella t		
g/nyerre	משונים מניסט ווווווטנפט פאו	40000	,	Log Reductions			utes)
Run Date	MPT "age" (weeks)	MPT Run #	Sample #	Challenge Dose	T30	T60	T90
31-Mar-03	0	10	2	6.70		6,70	
31-Mai-00			3	6.70		6.70	
15-Apr-03	2	13	4	6.69	4.29	6.69	6.69
10-7401-00			5	6.69	4.54	6.69	6.69
30-Apr-03	4	15	4	6.94	3.56	6.94	6.94
30-141-03			5	6.94	3.58	6.94	6,94
2 May 03	4	16	4	6.70	4.70	6,70	6.70
2-May-03			5	6.70	2.98	6.70	6.70
6-May-03	5	17	4	6.68	6.08	6.68	6.68
o-may-us	 		5	6.68	4.36		6.68
20-May-03	7	20	4	6.84	6.84	6.84	6.84
ZU-May-US	 		5	6.84	4.92	6.84	6,84
29-May-03	7	21	4	6.65	4,50	6.65	6.65
29-May-03	 		5	6.65	4.29	6.65	6,65
17-Jun-03	11	22	4	7.04	4,11	7.04	7.04
17-3011-00	 		5	7.04	3,61	7.04	7.04
15-Jul-03	15	24	4	7.00	4.07	7.00	7.00
13-301-00	1		5	7.00	3,36	7.00	7.00
7-Aug-03	18	29	6	7.08	4.14		7.08
7-rug-00	 		7	7.38	3.90	7.38	7.38
25-Aug-03	21	32	5	6,90	2.11	6.00	6.90
20-Aug-10	 		6	6.90	2.44	6.90	6.90
							<u> </u>
	 	T					
	 	 					<u> </u>
	 	 	1			<u></u>	

Figure 6C

Note: 7 Aug 03 sample #7 was challenged at 2X dose of #6 sample

Graph Values - May 6 and August 7 "flyer" results at 60 minutes excluded

30 (min	60 min	90 min	challenge level	
31-Mar-03		6.7		6.7	
3 (-INIGI-00		6.7		6.7	
15-Apr-03	4.29	6.69	6,69	6.69	
107401-00	4,54	6,69	6.69	6,69	
30-Apr-03	3,56	6.94	6.94	6.94	
30-701-00	3.58	6.94	6.94	6,94	
2-May-03	4.7	6.7	6.7	6.7	
Z-IVIAY-00	2.98	6.7	6,7	6.7	
6-May-03	6.08	6.68	6.68	6.68	
0-IVI29-00	4,36		6.68	6.68	
20-May-03	6.84	6.84	6.84	6.84	
2011121-00	4.92	6,84	6.84	6.84	
29-May-03	4.5	6.65	6.65	6.65	
23-Way-00	4.29	6.65	6.65	6,65	
17-Jun-03	4,11	7.04	7.04	7.04	
17-5011-00	3.61	7,04	7.04	7.04	
15-Jul-03	4.07	7	7	7	
13-301-03	3.36	7	7	7	
7-Aug-03	4.14		7.08	7.08	
7-740g-00	3.6	7,38	7.38	7.38	
25-Aug-03	2.11	6	6.9	6.9	
25-Aug-05	2,44	6.9	6.9	6.9	
	<u> </u>				

Average values - 1 per date: for graphing Chart 1

31-Mar-03		6.7		6.7	0
15-Apr-03	4,415	6.69	6.69	6.69	2
30-Apr-03	3,57	6.94	6.94	6.94	4
2-May-03	3,84	6.7	6.7	6.7	4
6-May-03	5.22	6,68	6,68	6,68	5
20-May-03	5.88	6.84	6.84	6.84	7
29-May-03	4.395	6.65	6.65	6.65 7.04	11
17-Jun-03	3.86	7.04	7.04	7.04	15
15-Jul-03	3.715	7.38	7.38	7.38	18
7-Aug-03	3.87 2.275	7.36 6.4	6.9	6.9	21
25-Aug-03	2.273	0.4	0.0	0.0	

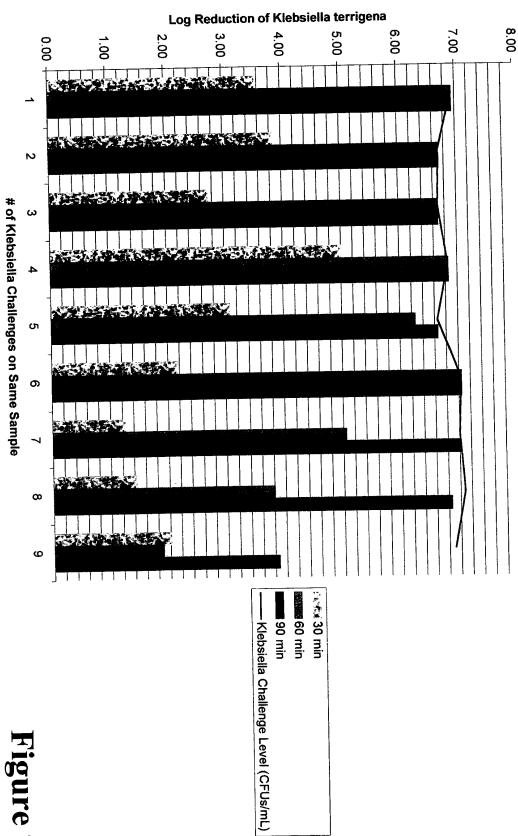


Figure 7

Filename: Repetitive Challenge Summary Version1.xls Filedate: 11 August 2003

Results in Scientific Notation No results excluded

Figure 8A

1			ebsiella terrigena					
			mL by contact time	Run Results - CFUs				
T120	T90	T60	T30	Challenge Dose	Sample #	MPT Run#	# Of Inoculations	Run Date
	0	0	2.4 x 10^3	8.7 x 10^6	4	15	1	30-Apr-03
1	0	0	2.3 x 10^3		5		 	30 1 17 13
j	0	0	9.9 x 10^1	5.0 x 10^6	4	16	2	2-May-03
1	0	0	5,3 x 10^3		5		- 	2 11.07 00
]	0	0	1.6 x 10^4	4.8 x 10^6	6	17	3	6-May-03
	0	0	5.2 x 10^3		7	 		U-IVIEY-00
	0	0	5.0 x 10^1	6.9 x 10^6	6	20	4	20-May-03
]	0	1.8 x 10^1*	1.0 x 10^2		7	 		20 Way-00
	0	2	1.4 x 10^5	4.5 x 10^6	6	21	5	29-May-03
1	0	3	1.0 x 10^2		7			23 Way-00
1	1	0	4.2 x 10^4	1.1 x 10^7	6	22	6	17-Jun-03
1	0	1	1.4 x 10^5		7			17-301-00
1	0	1.0 x 10^2	7.0 x 10^5	1.0 x 10^7	6	24	7	15-Jul-03
1	0	8.2 X 10^1	4.6 x 10^5*		7			13-30-03
1	3	1.5 x 10^3	4.3 x 10^5	1.2 x 10^7	6	29	8	7-Aug-03
	1	2.4 x 10^3	4.8 x 10^5		7	 		7-Aug-03
5.3 x 10^1	2.0 x 10^3	6.8 x 10^4	7.6 x 10^4	8.0 x 10^6	5	32	9	25-Aug-03
7 8	6.2 x 10^2	1.6 x 10^5	*		6			25-Aug-03
1		1				 		
1			· · · · · · · · · · · · · · · · · · ·			 		
1		1		1		 		
1		1		1		 		
1		T						
1		 		 		 		

Results in Number Format No results excluded

					Klebsiella terrigena		
				Run Results - CFU	s/mL by contact time	(min)	
Run Date	# Of Inoculations	MPT Run#	Sample #	Challenge Dose	T30	T60	T90
30-Apr-03	1	15	4	8,700,000	2,400	0	0
337,41.00			5		2,300	0	0
2-May-03	2	16	4	5,000,000	99	0	0
			5		5,300	0	0
6-May-03	3	17	6	4,800,000	16,000	0	0
V 11.47 54			7		5,200	0	0
20-May-03	4	20	6	6,900,000	50	0	0
Lo may so		1	7	1	100	18	0
29-May-03	5	21	6	4,500,000	140,000	2	0
20 11129 00		1	7		100	3	0
17-Jun-03	6	22	6	11,000,000	42,000	0	1
77 0417 00			7		140,000	1	0
15-Jul-03	7	24	6	10,000,000	700,000	100	0
10 00.00		 	7		460,000	82	0
7-Aug-03	8	29	6	12,000,000	430,000	1,500	3
17.45		†	7		480,000	2,400	1
25-Aug-03	9	32	5	8,000,000	76,000	68,000	2,000
<u></u> ,g		†·	6		-	160,000	620
			1				
		 					
		1	 	T			
		 	†	 			
		1	† · · · · · ·				
		 					

Results in Log Format No results excluded

				Klebsiella terrigena Run Results - CFUs/mL by contact time (min)						
Run Date	# Of Inoculations	MPT Run #	Sample #	Challenge Dose	T30	T60	T90			
30-Apr-03	1	15	4	6.94	3,38	0.0	0.0			
30.1.1. 33		 	5	6.94	3.36	0.0	0.0			
2-May-03	2	16	4	6.70	2.00	0.0	0.0			
2-10129-00	-	 	5	6.70	3.72	0.0	0.0			
6-May-03	3	17	6	6.68	4.20	0.0	0.0			
o may se			7	6.68	3.72	0.0	0.0			
20-May-03	4	20	6	6.84	1.70	0.0	0.0			
20 00		 	7	6.84	2.00	1.26	0.0			
29-May-03	5	21	6	6.65	5.15	0.30	0.0			

			7	6.65	2,00	0.48	0.00
		 	6	7.04	4,62	0.0	0.00
17-Jun-03	6	22		7.04	5,15	0.00	0.0
			6	7.00	5.85	2.00	0,0
15-Jul-03	7	24		7.00	5.66	1,91	0.0
		 _		7.08	5.63	3.18	0.48
7-Aug-03	8	29	6	7.08	5.68	3,38	0.00
				6.90	4,88	4.83	3.30
25-Aug-03	9	32		6.90		5,20	2.79
			6	6.90		 	
			 				
							<u> </u>

1.72 0.00

Log Reductions Excluded May 20, T60 result - apparent plate contamination on Sample #7

				P	(lebsiella terrigena			4
			l	Log Reduc	tions by Contact Ti	me (minutes)		
Run Date	# Of inoculations	MPT Run #	Sample #	Challenge Dose	T30	T60	T90	T12
	4 Of Mocdiadons	15	4	6.94	3.56	6.94	6.94	_
30-Apr-03		 	5	6.94	3.58	6.94	6.94	_
5 May 02	2	16	4	6.70	4.70	6.70	6.70	_
2-May-03		 	5	6.70	2.98	6.70	6.70	_
0.14 00	3	17	6	6.68	2.48	6.68	6.68	
6-May-03		 -	7	6.68	2.96	6.68	6.68	
00 140 02	4	20	6	6.84	5.14	6.84	6.84	╛
20-May-03		1 -20	7	6.84	4.84		6.84	
22.14 20	5	21	6	6.65	1.50	6.35	6.65	
29-May-03	9		7	6.65	4.65	6.17	6.65	
	6	22	6	7.04	2.42	7.04	7.04	
17-Jun-03			7	7.04	1.89	7.04	7.04	
15 1 1 00	7	24	6	7.00	1.15	5.00	7.00	
15-Jul-03		 -27	7	7.00	1.34	5.09	7.00	
	8	29	6	7.08	1,45	3.90	6,60	
7-Aug-03	8	1 23	7	7.08	1,40	3.70	7.08	1
OF A CO	9	32	5	6.90	2.02	2.07	3.60	5.1
25-Aug-03		+	6	6,90		1.70	4.11	6.9
		+	├─ॅ ─	1				
		+	 					
			 					
		+	+					
		 	+	 				
		+	 	<u> </u>				7

Graph values May 20 sample #7 resuit excluded

	30 min	60 min	90 min	challenge level
30-Apr-03	3.56	6.94	6.94	6.94
00 T Ip. 00	3.58	6.94	6.94	6.94
2-May-03	4.70	6.70	6.70	6.70
2 may so	2.98	6.70	6.70	6.70
6-May-03	2.48	6.68	6.68	6.68
0 11.0, 00	2.96	6.68	6.68	6.68
20-May-03	5.14	6.84	6.84	6.84
20 11.27 00	4.84		6.84	6.84
29-May-03	1,50	6.35	6.65	6.65
20 1114) 50	4.65	6.17	6.65	
17-Jun-03	2.42	7.04	7.04	7.04
17 0011 00	1.89	7.04	7.04	7.04
15-Jul-03	1.15	5.00	7.00	
1	1.34	5.09	7.00	7.00
7-Aug-03	1.45	3.90	6,60	
	1.40	3,70	7.08	
25-Aug-03	2.02	2.07	3,60	
		1.70	4.11	6.90
	<u> </u>			
		1		
	<u> </u>			

Average values - 1 per date - for graphing Chart 1

	30 min	60 min	90 min	challenge level	#
30-Apr-03	3.57	6,94	6.94	6.94	

of Kleb Challenges 1

Figure 8B

7-Aug-03 25-Aug-03	1.43 2.02	3.80 1.88		7.08 6.90
15-Jul-03	1.25	5.05	7.00	7.00 7.08
17-Jun-03	2.16	7.04	7.04	7.04
29-May-03	3,08	6.26		6.65
6-May-03 20-May-03	2.72 4.99	6.68 6.84	6.68 6.84	6.84
2-May-03	3.84	6.70	6.70	6.70 6.68

Figure 8C